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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/758,155	01/12/2001	Masahiro Kazayama	0649-0770P	8919

2292 7590 08/25/2004

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EXAMINER	
HUNG, YUBIN	
ART UNIT	**PAPER NUMBER**
2625	

DATE MAILED: 08/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/758,155	KAZAYAMA ET AL.	
	Examiner	Art Unit	
	Yubin Hung	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 June 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2 and 4-9* is/are rejected.

7)☒ Claim(s) *3* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01/12/01* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Response to Amendment/Arguments

1. This action is in response to amendment dated June 15, 2004

2. In view of applicant's amendment, the objection to the specification has been withdrawn.

3. In remarks Applicant argued in substance (P. 9, 3rd paragraph) that the additional limitation ("wherein the amount of image feature is extracted on an inter-frame basis") of the amended claims 1 and 7 are not taught by either Takizawa or Bhaskaran. However, this new limitation is taught by Watanabe. [See the analysis of claims 1, 6 and 7 below.] Accordingly, applicant's argument that claims 2, 4, 5 and 8 should be allowable because they are dependent from claims 1 and 7, respectively [P. 10, lines 15-18; P. 12, lines 13-21] is moot.

Rejections Necessitated by Amendment

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims1, 6, 7, 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takizawa et al. (6,097,737), in view of Watanabe (JP 09-182079 and its English translation) and Bhaskaran et al. ("Image and Video Compression Standards—Algorithms and Architectures", 2nd ed., 1997)

3. Regarding claim 1, similarly for claims 7 and 9, Takizawa et al. discloses

- an encoding preprocessing portion for extracting the amount of image feature from a moving image not encoded
  [Fig. 5, numeral 115; Col. 5, lines 33-53]
- a control portion for setting encoding parameters based on the amount of image feature extracted in the encoding preprocessing portion
  [Fig. 5, numeral 116; Col. 5, lines 54-57]
- an encoding portion for encoding the moving image whose frames are sorted by the encoding preprocessing portion, based on the encoding parameters from the control portion
  [Fig. 5, numerals 101-114. Note that while 105 alone constitutes an encoder, 101-114 in combination performs a more sophisticated encoding]

Takizawa et al. does not expressly disclose that the amount of image feature is extracted on an inter-frame basis and that the frames are sorted in the encoding order. However, Watanabe teaches extracting image features (first- and second-order difference) on an inter-frame basis to (detect dissolve images) [English translation: Abstract; Eqs. 1 & 4] and Bhaskaran et al. teaches reordering (i.e., sorting) of the frames [P. 190, 2nd paragraph].

Takizawa, Watanabe and Bhaskaran are combinable because they are from the same field of endeavor of image encoding.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Takizawa et al. with the teachings of Watanabe and Bhaskaran by extracting image features on an inter-frame basis and reordering the frames. The motivation would have been because inter-frame differential encoding of dissolve images may result in a large prediction error [Watanabe: Sect. 002 of the English translation] and that, for example, a B-frame will need frames both before and after it in the temporal sequence to be available for encoding [Bhaskaran: P. 190, 2nd paragraph, lines 3-5].

Therefore, it would have been obvious to combine Watanabe and Bhaskaran with Takizawa to obtain the invention of claim 1.

4. Regarding claim 6 (original), the Bhaskaran et al. suggests:

- divides each of the frames constructing the moving image into a plurality of regions and obtains the amount of image feature for each of the plurality of regions
  [P. 183, second paragraph, lines 1-5. Note that MPEG processing is block-based, i.e., the encoding is performed on each and every one of the blocks.]

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5. Claims 2, 4, 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takizawa et al. (US 6,097,737), Watanabe (JP 09-182079 and its English translation) and Bhaskaran et al. ("Image and Video Compression Standards—Algorithms and Architectures", 2nd ed., 1997) as applied to claims 1, 6, 7 above, further in view of

Fernando et al. (International Conference on Image Processing, Vol. 3, 24-28 Oct. 1999, pp. 299-303).

6. Regarding claims 2, and similarly for claims 4 and 8, the combined invention of Takizawa, Watanabe and Bhaskaran et al. teaches everything except for the following

- encoding preprocessing portion extracts the amount of image feature for detecting a dissolve interval from the moving image not encoded

However, Fernando teaches the detection of dissolve using features comprising the 1st derivative (i.e., linear differential value) and the 2nd derivative (i.e., quadratic differential value) of the variance (another image feature) of an image frame [P. 300, Sect. 3.1, lines 1-15]. (Note that per the analysis for claim 1, Takizawa already discloses that the control section sets encoding parameter according to extracted features, which in this case are the 1st and the 2nd derivatives that together determine whether an image is within or without the dissolve interval.)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combined invention of Takizawa, Watanabe and Bhaskaran et al. by extracting features for detecting dissolve as taught by Fernando et al. because during the fading/dissolving period the mean and the variance of an image frame exhibit a linear and a quadratic behavior, respectively, as pointed out by Fernando [P.300, Sect. 3., lines 1-2].

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7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takizawa et al. (US 6,097,737) and Bhaskaran et al. ("Image and Video Compression Standards—Algorithms and Architectures", 2nd ed., 1997) as applied to claims 1, 6, 7 above, further in view of Mutoh et al. (6,631,210).

Regarding claim 5, the combined invention of Takizawa et al. and Bhaskaran et al. teaches everything except for the following

- extracts the amount of image feature for each signal component of each of the frames constructing the moving image

However, Mutoh et al. teaches the extraction of various features from the each of the C, M, and Y components (i.e., signal components) [Fig. 19; Col. 30, lines 23-29].

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combined invention of Takizawa et al. and Bhaskaran et al. by extracting image features for each of the image components as taught by Mutoh et al. in order to improve the accuracy of any subsequent processing as afforded by the redundancy inherent in multiple data source (i.e., different image components).

Allowable Subject Matter

8. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter:

10. Regarding claim 3, the prior art of record fails to teach or suggest, alone or in combination, a moving image encoding apparatus comprising, along with other limitations:

- the control portion sets the encoding parameters so that a distance between an intra coded picture and a neighboring predictive coded picture is 2, and a distance between nearest neighboring two predictive coded pictures is also 2 when the encoding portion encodes the frames of the dissolve interval based on the amount of image feature extracted in the encoding preprocessing portion

Closest art of record Watanabe et al. (US 5,894,526) discloses setting the initial inter-frame distance between a reference frame and a predicted frame to two and subsequently adjusting this distance depending on the size of the accumulated differential. [See Fig. 5.] However, it does not set the distance to 2 whenever the frame is in a dissolve interval, regardless of the corresponding accumulated differential.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

12. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yubin Hung whose telephone number is (703) 305-1896. The examiner can normally be reached on 7:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (703) 308-5246. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Yubin Hung
Patent Examiner
August 23, 2004

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